

BRITISH GLIDING ASSOCIATION

BGA TECHNICAL COMMITTEE

TECHNICAL NEWSHEET TNS 3/4/92

- PART 1 Airworthiness "AGGRO" Please add to the 1992 BGA Red Pages. (Compendium of Airworthiness Directives, Mandatory Modifications and Special Inspections).
- 1.1. Bocian Speed-brake control Rod-End Fork broken - sketch herewith (Reported by Angus G.C. - Arbroath).
 - 1.2. Slingsby Kestrel - Control drive unit cracked at the weld - (Sketch herewith).
 - 1.3. Std Libelle - Low speed aileron flutter, because the aileron was not connected! (Reported by B.G.G.C. - Nympsfield).
 - 1.4. ASW 24E - (None in UK so far). Loose screws in the engine support bracket. (LBA AD 92-8 herewith).
 - 1.5. Oil Filter Weld Failure - Typical sample from USA manufacturer, illustrated herewith in GASIL 2/92, could apply to Tugs/SLMG's.
 - 1.6. PA25-235 Pawnee - Fuel Tank Failure. Extract from GASIL quotes Canadian experience.
 - 1.7. Grob G109B (2500 Engine) - Inspection of Bendix Magnetos. T.M 817-3A herewith.
 - 1.8. Hand Swinging Propellers - GASIL extract outlines the hazards and the correct methods, depending upon the direction of rotation!
 - 1.9. ASH 25 - Aerotow Hook Facility. Tech Note 5 from UK Agents introduces this option.
 - 1.10. SZD-50-3 Puchatcz - Rear Tow Release jammed by perished rubber sleeve. Sketch by Harry Worth, Peterborough & Spalding G.C.
 - 1.11. Bird's Nest in (Slingsby) Kestrel Wing, was lined with G.R.P. debris - Beware the nesting season!
 - 1.12. Conversion Tables (for Weak Links etc) are copied herewith from BGA Laws & Rules.
 - 1.13. KA21 - Nylon Tubes in Rudder Pedal "S" Bends, migrate and restrict the Rudder travel - (Reported by Lasham).

- 1.14. Bombardier - Rotax Series Engines. Latest issue of CAA Airworthiness Directives is copied herewith and includes :-
- a) Piston Pins
 - b) Failure of Crankcase/Gearbox thread bosses
- 1.15. SLINGSBY T.61(F) ex ATC "Ventures".
- a) Inspect for corrosion around tailwheel mounting structure.
 - b) Curtis Water Drain Valves in the fuel system have not been modified to prevent them staying "open" after the water check has been made.
- 1.16. Grob G109(B) Carburettor Float Valve assembly replacements are recommended at 500 HRS ref Operations Manual Grob 2500 para 6.2.4.
- 1.17. SWAGED FLYING Control Cable Failure (ASTIR) Once again incorrectly matched cable size ferrule size, and swaging tool resulted in an in-flight failure. (MICROPRESS HAND SQUEEZERS are matched to cable 1/16", 3/32", 1/8" and 5/32").
- 2.0. Accidents/Incidents - Extracts from GASIL and AAIB Bulletins herewith :-
- a) PA25 - 235 Pawnee - collided with winch cable.
 - b) Scheibe SF25B - damaged in field landing practice. (TOO LATE/TOO LOW!!).
- 2.1. Carburettor Icing Hazards - are applicable to all types of engines, regardless of installation. GASIL Reminder herewith should be displayed on the NOTICE BOARD.

R.B. Stratton
Chief Technical Officer

B O C 1 4 4 1 1 5 E G n . 1 6 6 0 .

Airbrake Push Full Rod Fork End.

On inspection it was found that one leg of the fork end was broken off at the inboard end of the Push Full rod on the Port Wing Airbrake

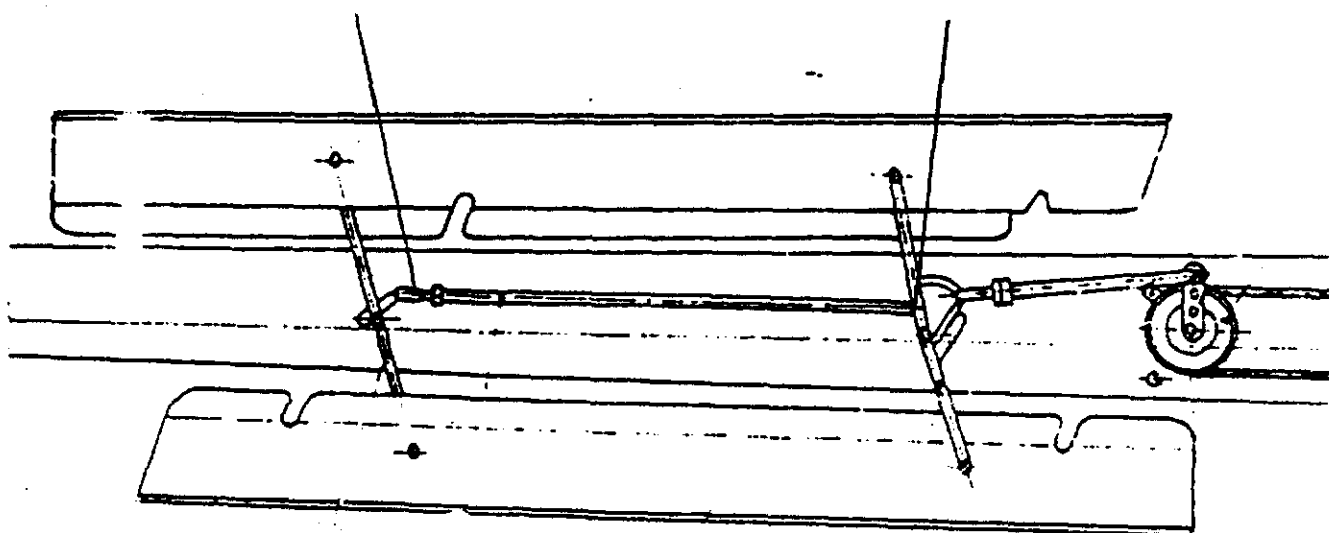
Swaged Fork End of the rod.

Broken Fork End Leg



Adjustable Fork End

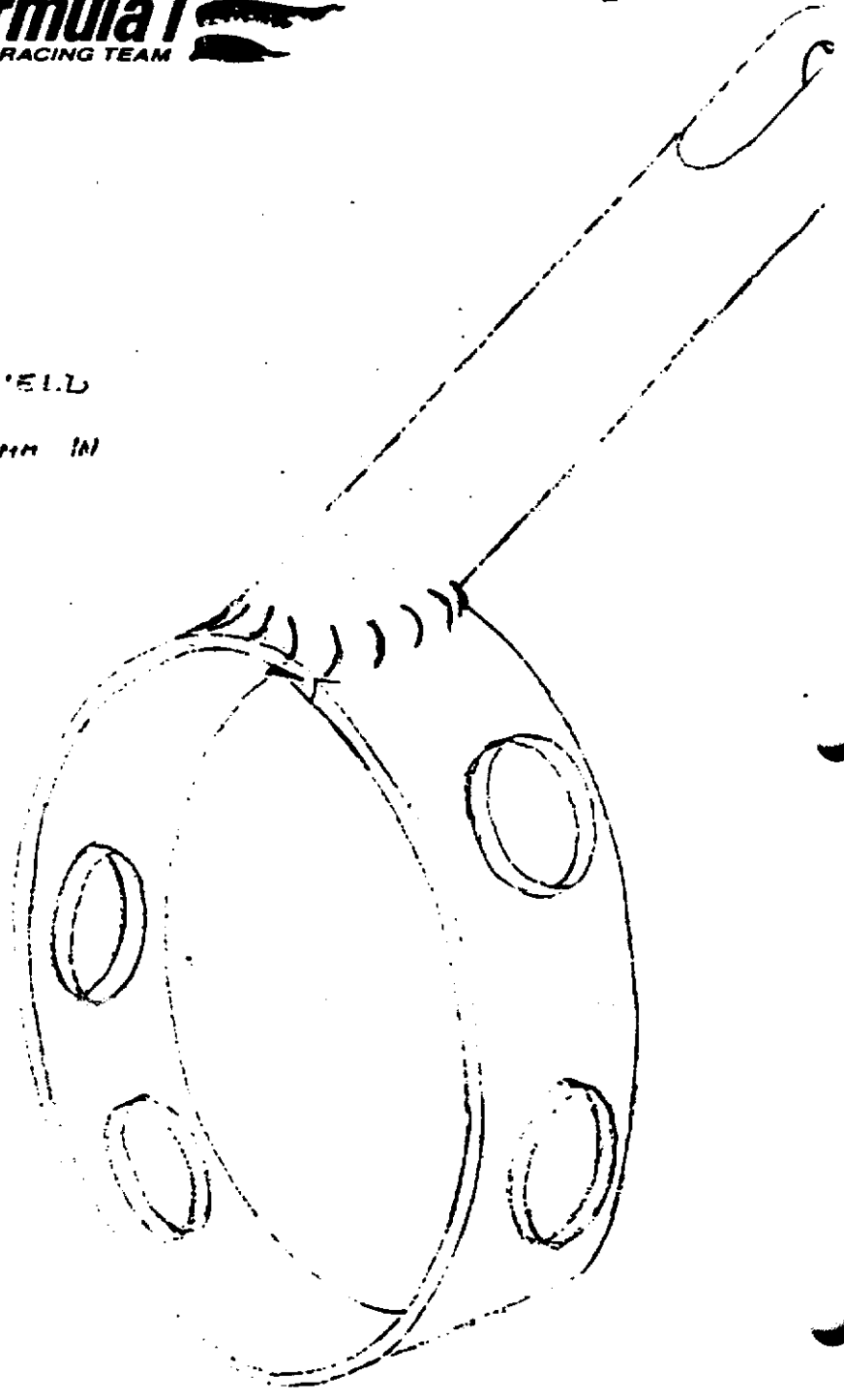
Swaged Fork End



Other Gliders may have this system fitted.

Angus Gliding Club ARBACATH Scotland.

CRACKED AT BASE OF WELD
AT THIS POINT APPROX 2mm IN
FROM EDGE.



SLINGSBY Kestrel

T. 45 steel

Please note: NEW Telephone and Fax Nos. for
Marketing, Accounts and Technical Dept.
Telephone: 0993 700200 (Witney)
Fax: 0993 700222 (Marketing/Accounts)
Fax: 0993 700333 (Technical Dept)

Be:
Uni:
Cat:
Sun:

6134
G



Benetton Formula Ltd
Unit 9, Witney Trading Estate
Station Lane, Witney
Oxfordshire OX8 6XZ

Telephone 0993 774221
Telefax 0993 705956
Engineering Fax 0993 771037
Telex 837941 BENFOR G

AIRWORTHINESS DIRECTIVE

92-8 Alexander Schleicher

ASW 24 E

Date of issue:

17. FEB. 1992

Affected Motorglider:

German Type Certificate No. 859

ASW 24 E

A) S/N 24801 thru 24814

S/N 24816 thru 24847

This is factory-standard as of serial no. 24848.

B) S/N 24801 thru 24814

S/N 24816 thru 24822

S/N 24825 thru 24847

This is factory-standard as of serial no. 24848.

C) S/N 24801 thru 24847

This is factory-standard as of serial no. 24848.

Subject:

A) Securing of the screws at the engine support bracket.

B) Replacement of the lower support bracket of the gas spring near the screw jack.

C) Supplement to the Maintenance Manual.

Reason:

A) Some cases with the motorglider ASW 24 E have been reported where the cylindrical screws M10 at the engine support bracket have backed off (see Fig.2.2-5, item 29, on Page 2.11 Maintenance Manual).

B) Some cases with the motorglider ASW 24 E have been reported where the cylindrical screw M6 at the lower support bracket of the gas spring near the screw jack has broken (see Fig.2.2-7, item 53, on Page 2.13 Maintenance Manual).

Action and compliance:

Action to be accomplished in accordance with Technical Note No. 2 before the next take-off after the effective date of this AD, and on occasion of the next annual C. of A. inspection, but on March 31, 1992 at the latest respectively.

Technical publication of the manufacturer:

ASW 24 E Technical Note No. 2 of November 7, 1991, which becomes herewith part of this AD and may be obtained from Messrs.

Alexander Schleicher GmbH & Co.
Segelflugzeugbau,
W-6416 Poppenhausen, Federal Republic of Germany.

Accomplishment and log book entry:

The actions A and B can be accomplished by a competent person. The accomplishment of this mod must be certified by a licensed aviation inspector in the glider's inspection documents and in the log-book.

The action C can be accomplished by the owner/operator of the glider himself.

Owners may order the parts from SCHLEICHERS or via the Schleicher agency in their country.

Engineering Section

See also P/E items in main GASIL

15.



GASIL

2/92

E1.OIL FILTER LEAKS

Aircraft Type : Piper PA28 Archer
Date : November 1991
Engine Type : Lycoming O-360-A4A



A new oil filter was fitted after 150 hour inspection. A slight oil leak could not be traced. Progressively the leak increased

throwing oil over the rear of the engine cover. After flight, it leaked onto nose wheel spat.

The fault was found to be due to 2 faulty welds on the top of the filter as shown in the photograph.

6. FUEL TANK FAILURE

P/E

Aircraft Type : Piper PA25 Pawnee
Date : 1991

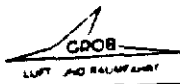
Extract from *Canadian Service Difficulty Alert*:

"During a forced landing, the "Pawnee" aircraft burst into flames, the fire being attributed to the fibreglass fuel tank's bursting on impact.

It was found that the fibreglass fuel tanks originally installed in

the PA25-150/-235 aircraft (without a rubber cell insert) are more susceptible to impact damage. The manufacturer, Piper Aircraft Corporation, issued Service Bulletin No 878 on 18 January 1988, to make owners/operators aware of the availability of a fuel tank assembly with a

rubber liner as a replacement for the original fibreglass fuel tank. Transport Canada strongly recommends that owners/operators of Piper PA25 aircraft replace original fuel tank assemblies with the ones specified in Service Bulletin No 878 to improve the crashworthiness of the aircraft."



Subject: Inspection of the BENDIX-magnetos at the GROB 2500 engine

Concerning: G 109B, as of S/N 6200

Urgency: within the next 25 flight hours

Procedure: During engine inspections too less clearance between flyweights and stop pin has been found.

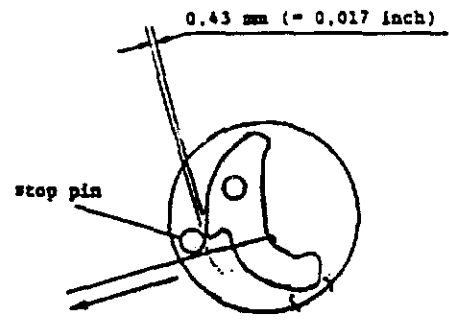
Action: To prevent a possible damage of the magnetos or the engine, an inspection for the clearance between flyweights and stop pin is required. Perform as follows:

- Caution:**
- Ignition switch "OFF"
 - Disconnect ignition harness from all spark plugs. Ground ignition leads to avoid sparking.
 - Remove all spark plugs.

1. Remove magneto(s).
2. Measure the clearance between stop pin and flyweights with a proper measuring instrument as follows:

Note: At engines with dual ignition, both magnetos must be checked.

 - a. Pull the flyweight outwards by using a proper tool (for example a stiff, bended wire), measure the clearance and note the value. The clearance must have a minimum of 0,43 mm (=0,017 inch).
 - b. Repeat the measurement for the second flyweight.



GROB 2500 ENGINE

8. AERONAUTICAL CHARTS

P

The next edition of the CAA's 1:500,000 Chart sheet 2171CD "Southern England and Wales" will be issued in the very near future, showing details of the new ATS Airspace Classification and all other recent airspace changes. Secure your copy NOW by telephoning the CAA Chart Sales

Office on 071 832 5569 or 5568, or write to:

CAA Chart Room
Room T1 120, CAA House
45-59 Kingsway
London WC2B 6TE

Personal callers are also welcome. Cash, cheque with order please or credit card.

Save money too! Orders placed before the end of March will be charged at the 1991 price of £8.00 (paper) or £8.50 (laminated).

9. HAND SWINGING PROPELLERS

P



Cessna 150 - file photo showing correct method

Aircraft type: : Piper J3 Cub, registration G-BSMF
Date : 28 December 1991

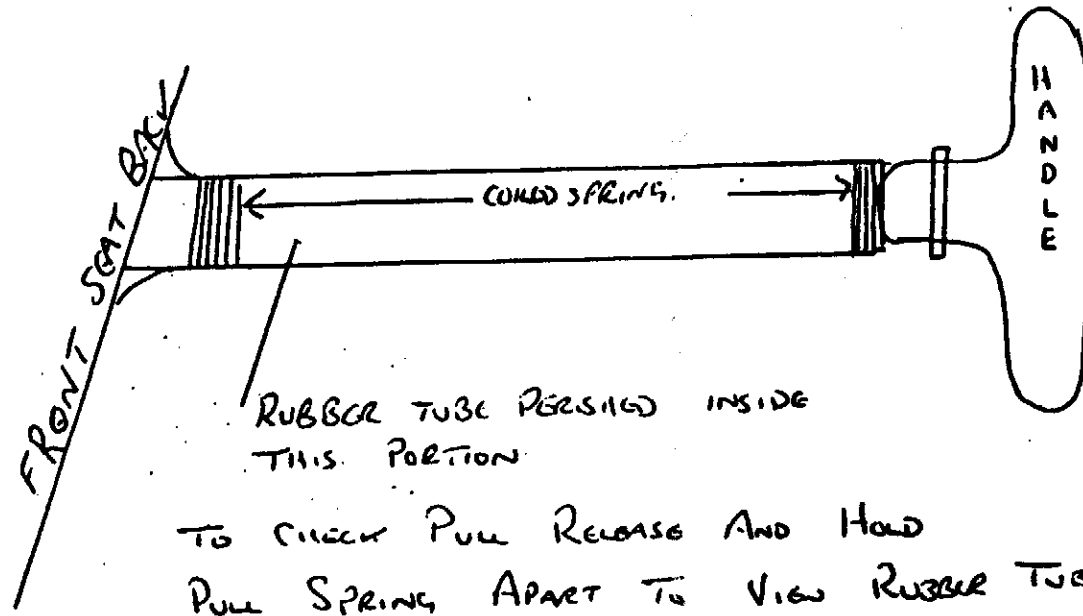
Extract from AAIB Bulletin:

"The pilot and his passenger were preparing to leave Farway Common Airstrip. The aircraft required the propeller to be hand swung to start the engine. The passenger, although not a pilot, flew regularly with the pilot and had been trained by him to assist with the start by holding the control column and applying the brakes. The passenger had not

been briefed on the operation of the magnetos nor on closing the throttle. On this occasion the pilot pumped the throttle and set it for the start, switched on the magnetos and then went to the front of the aircraft to swing the propeller. He reported that the engine started immediately he swung the propeller and that it

ran much faster than normal. The passenger was unable to hold the aircraft on the brakes and it began to taxi ahead down a slope. Eventually the wheels dropped into a shallow ditch causing the aircraft to 'nose-over' and strike a wall behind the ditch upon which it came to rest inverted."

DIAGRAM



Pinchitz - Pull Release



BIRD'S NEST
 OUT OF SKYLARK
 INSTEAD WORK BY
 THE

BIRD'S NEST IN BAG

CONVERSION TABLES

METRES		FEET
0.305	1	3.281
0.610	2	6.562
0.914	3	9.843
1.219	4	13.123
1.524	5	16.404
1.829	6	19.685
2.134	7	22.966
2.438	8	26.247
2.743	9	29.528
3.048	10	32.808
6.096	20	65.617
7.620	25	82.021
15.240	50	164.042
30.480	100	328.084

KMS.		MILES
1.609	1	0.621
3.219	2	1.243
4.828	3	1.864
6.437	4	2.485
8.047	5	3.107
9.656	6	3.728
11.265	7	4.350
12.875	8	4.971
14.484	9	5.592
18.093	10	6.214
32.187	20	12.427
40.234	25	15.534
80.467	50	31.069
160.934	100	62.137

KILOGRAMS		POUNDS
0.454	1	2.205
0.907	2	4.409
1.361	3	6.614
1.814	4	8.818
2.268	5	11.023
2.722	6	13.228
3.175	7	15.432
3.629	8	17.637
4.082	9	19.842
4.536	10	22.046
9.072	20	44.092
11.340	25	55.116
22.680	50	110.231
45.359	100	220.462

Wing loadings:
 1 lb./sq. ft. = 4.88 kg./sq. m.
 1 kg./sq. m. = 0.205 lb./sq. ft.

Pressure:
 1 lb./sq. in. = 0.07 kg./sq. cm.
 1 kg./sq. cm. = 14.3 lb./sq. in.

To convert temperature:
 in °C to °F
 multiply by 9/5 and add 32
 1 cu. ft. of water weighs 62.4 lb.
 1 nautical mile = 6,080 ft.

I.C.A.O. ALPHABET

A	Alpha	N	November
B	Bravo	O	Oscar
C	Charlie	P	Papa
D	Delta	Q	Quebec
E	Echo	R	Romeo
F	Foxtrot	S	Sierra
G	Golf	T	Tango
H	Hotel	U	Uniform
I	India	V	Victor
J	Juliet	W	Whiskey
K	Kilo	X	X-Ray
L	Lima	Y	Yankee
M	Mike	Z	Zulu

BOMBARDIER-ROTAX SERIES ENGINES

PART 1 – BUNDESAMT FÜR ZIVILLUFTFAHRT AIRWORTHINESS DIRECTIVES

<i>BAZ AD No.</i>	<i>Description</i>	<i>Applicability – Compliance – Requirement</i>
64.	Piston pin bearing, conversion to reinforced design.	Applicable to Bombardier-Rotax 501 and 505 up to engine No. 3,332.827. Compliance required as detailed in AD. Bombardier-Rotax Service Bulletin No. 505-05 also refers.

PART 2 - CAA ADDITIONAL AIRWORTHINESS DIRECTIVES

CAA AD No.	Description	Applicability - Compliance - Requirement
006-03-90	Failure of crankcase/gearbox thread bosses.	<p>Applicable to Bombardier-Rotax 582 engines and 532 engines with Serial Nos as detailed in Bombardier-Rotax Mandatory Technical Bulletin reference TCP 900228/0720/FJ and Cyclone Hovercraft letter dated 1 March 1990, that have a reduction gearbox installed with the propeller shaft offset towards the cylinder. Compliance is required before further flight.</p> <p>Establish total number of engine operating hours. Engines exceeding 20 hours total time must be modified in accordance with Bombardier-Rotax Mandatory Technical Bulletin reference TCP 900228/0720/FJ before further flight Engines which have not accumulated a total time of 20 hours may be operated up to that figure.</p>

No: 3/92

Ref: EW/G92/01/07

Category: 1c

Aircraft Type and Registration: Piper PA-25-260 (Modified), G-TOWS
No & Type of Engines: 1 Lycoming O-540-B2C5 piston engine
Year of Manufacture: 1969
Date & Time (UTC): 12 January 1992 at 1418 hrs
Location: Chipping Airfield, Lancashire
Type of Flight: Private
Persons on Board: Crew - 1 Passengers - None
Injuries: Crew - None Passengers - N/A
Nature of Damage: Substantial damage to the propeller, wings, rear fuselage and tailplane
Commander's Licence: Private Pilot's Licence
Commander's Age: 36 years
Commander's Flying Experience: 220 hours (of which 8 were on type)
Information Source: Aircraft Accident Report Form submitted by the pilot

Glider operations were being carried out at Chipping airfield from runway 12. The gliders were being launched using a ground winch and cable or by use of the aerotow aircraft involved in this accident. The pilot of the aerotow aircraft was also an experienced glider pilot. As the wind was reported to be north-easterly at less than 5 kt the pilot elected to take off using runway 12 and to use the reciprocal, Runway 30, for landing to avoid the down slope on Runway 12.

The pilot stated that he joined the circuit, from the thirteenth aerotow of the day, from the north at 1,000 feet for a landing on Runway 30. On seeing a glider being launched by winch he flew a left hand pattern keeping initially to the west of the airfield. Once the glider had been launched the pilot of the aerotow aircraft concentrated on positioning his aircraft to the south for the landing. He turned finals at 400 feet and then between 200 and 300 feet the aircraft experienced a violent yaw to starboard and nose pitch down to about 45 degrees. He had no idea at this stage what had happened but he did note that the aircraft appeared to have stopped flying. He applied full power and retracted the flaps. The aircraft responded at about 30 feet and the pilot initiated a right hand turn to complete a go-around. At that point he noticed the winch cable draped over the right wing of his aircraft. In order to avoid the winch cable tightening he executed a tight right turn to position back for a landing on Runway 30. On

landing the cable tightened and the aircraft ground looped to the right. Unhurt, the pilot made a rapid exit from the aircraft.

Aircraft Type and Registration: Scheibe SF25B Falke, G-BMVA
No & Type of Engines: 1 Limbach SL 1700-EA piston engine
Year of Manufacture: 1972
Date & Time (UTC): 18 January 1992 at 1145 hrs
Location: Near Aboyne Airfield, Grampian, Scotland
Type of Flight: Private (SLMG instruction)
Persons on Board: Crew - 2 Passengers - None
Injuries: Crew - None Passengers - N/A
Nature of Damage: Minor damage to the leading edges of both wings and the underside of the fuselage
Commander's Licence: Private Pilot's Licence (SLMG) and BGA Restricted Motor Glider Instructor rating
Commander's Age: 39 years
Commander's Flying Experience: 307 hours (of which 51 were on type)
Information Source: Aircraft Accident Report Form submitted by the pilot

The instructor and his student took off from Aboyne airfield and departed to the north with the intention of practicing field landings. The instructor handed control to his student and closed the throttle; together they discussed and chose a suitable field for the first practice field landing. The field was level, 400 yd long and 200 yd wide with a double barbed wire fence on either side of a stream which defined the downwind boundary of the field. The student flew an apparently well planned circuit and on final approach the instructor assessed that they would cross the field boundary about 8 to 10 feet above the fence. He had briefed his student to go-around and, on late finals after noting the airspeed was 45 kt, he looked towards the middle distance in preparation for the go-around. Shortly afterwards the student thought that the airspeed was too low and so he lowered the nose. The instructor was unable to prevent the aircraft from passing through the barbed wire fences and the aircraft came to rest 200 yd into the field.

The instructor candidly assessed the causal factors of the accident as: overshooting at too late a stage; lack of demonstration and insufficient close monitoring of his student during the late stages of the circuit.

15. CARBURETTOR ICING

P/E

Aircraft type : Cessna 172, registration G-AWXV
 Date : 21 March 1991

Extract from AAIB Bulletin:

"During a local flight, and after spending approximately one minute level at 2500 ft, Warton ATC advised a descent to 1000 ft AMSL to avoid conflicting traffic. The pilot applied full carburettor heat, throttled the engine back to around 1500 RPM and commenced a descent applying a gentle right skid to achieve around 1000 ft per minute rate of descent at 100 knots indicated air speed. The engine was momentarily warmed on two occasions during the descent using the normal practice of advancing the throttle fully over a period of around three seconds, with hot air remaining selected, and maintaining full power for about four seconds before returning the throttle to idle. After passing through 1500 ft AMSL the throttle was opened in anticipation of levelling off, but the engine failed to respond, remaining at 1500 RPM. At this stage the aircraft was just heading out over the Ribble Estuary which at the time was filled with water as the tide was in.

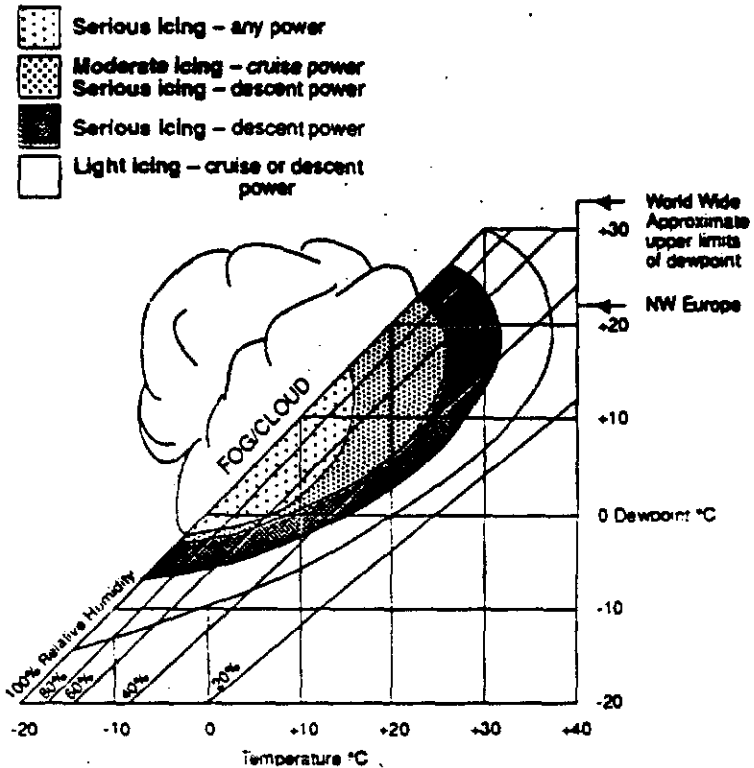
Despite checking fuel tank selection, magneto, mixture and

carburettor hot air selections, the pilot was unable to restart the engine. He carried out a forced landing during which the aircraft was substantially damaged. The following day the engine started and ran normally throughout its speed range.

An aftercast of the weather

conditions indicated that they were conducive to a serious risk of icing at any power setting for a typical light aircraft piston engine without carburettor hot air selected."

See Chart above, extracted from Safety Sense Leaflet 14, 'Piston Engine Icing'.



Aircraft type : Jodel DR1051, registration G-BPLH
 Date : 22 October 1991

Extract from AAIB Bulletin:

"The aircraft was cruising at flight level 45 but after about 10 minutes at this level, the engine began to run roughly so the pilot

turned on the electric fuel pump and switched back to the forward fuel tank. The engine continued to run roughly and lose power so

the pilot made a Mayday call. He trimmed the aircraft for a glide and made a further attempt to rectify the power problem which

...Continued

included trying the magneto switches. The engine did not respond to any of these changes although the pilot noted that the oil pressure and temperature was still normal. He descended on instruments, and at about 55 knots through the cloud and fog which he had been over-flying. He had seen a patch of green through the fog and aimed for that. He finally got visual contact with the ground at approximately

50 ft with a hedge and electric power cables in front of him, so he turned right, selected full flap and lowered the nose so as to land diagonally across the field. The aircraft was substantially damaged in the forced landing, but the occupant was uninjured.

Examination of the engine did not show any apparent reason for the loss of power. The pilot considers that carburettor icing

was the most likely cause as the temperature and dew point were within the susceptible range and the aircraft had been operating at altitude for some time. He notes that in this installation of this model of engine (Potez model 4 - E20) the induction air is drawn from within the cowling itself and there is no provision for direct heating of the carburettor or the induction air."

Aircraft type : Piper PA28 Warrior, registration G-BFCM
Date : 11 April 1991

Extract from AAIB Bulletin:

"The aircraft was on a local flight and after about half an hour, the pilot reported that he routinely changed the fuel supply from the left to the right tank. After a few minutes of operation on this tank the engine began to run roughly, then stopped completely.

He selected full carburettor heat, checked the fuel pump ON, changed the fuel selection back to the left tank and commenced the engine failure drill. The engine did not respond to the restart attempts so the pilot selected a suitable field for a forced landing. Unfortunately, the field chosen had recently been ploughed and scuffed ready for seeding and the soft surface caused the nose landing gear to collapse, standing the aircraft on its nose and wing tips. Despite wearing the diagonal restraint, the pilot hit his head on the coaming and wrenched his back. However, he managed to

evacuate the aircraft without further injury.

The engine itself was subsequently ground run with no indications of abnormalities which could have led to its failure. The maintenance organisation which recovered the aircraft reported that the lower spark plugs were later found to be wet with water which, in their opinion and experience, is commonly the result of melted ice deposit from the induction system.

The meteorological aftercast for the Kidderminster area at the time of the accident indicated that the weather conditions below 5000 feet were conducive to serious induction icing at any power setting."

CAA COMMENT:

Carburettor icing is an insidious

danger which can catch pilots out at any time. **USE THE CARBURETTOR HEAT REGULARLY AND GIVE IT TIME TO WORK! CONSIDER THE CARB HEAT CONTROL TO BE AN ON/OFF CONTROL, ie FULL ON OR FULL OFF.**

Carb icing is most likely at low power settings or at idle (due to the massive temperature drop around the throttle butterfly at the low manifold pressure that results from reduced or idle rpm).

Remember, it will often take 15 seconds for even small build-ups of ice to melt. Read Safety Sense Leaflet 14, Piston Engine Icing, and should further supplies of this leaflet be required then they are available from Printing and Publications Services at Cheltenham, free of charge. The appropriate address is at the bottom of page 2.